Educational Psychology

UNIVERSITY OF MARYLAND

A WORLD LEADER FOR RESEARCH ON LEARNING AND DEVELOPMENT. PIONEERING RESEARCH THAT MOVES BEYOND THE LABORATORY AND MAKES A REAL-WORLD DIFFERENCE.

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COLLEGE OF EDUCATION

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Dean's Message

The University of Maryland College of Education's educational psychology program explores the fundamental questions that underpin learning, education, and society, and how best to assess those questions.

How do children learn math in early childhood? What kinds of play improve problem solving and cognitive abilities? How does the brain change as we learn to read? These are some of the critically important questions our educational psychology faculty ask as leaders exploring the cutting edge of their fields.

One of the world's leading centers for research on learning and development within formal and informal contexts, our faculty are recognized authorities in the cognitive, motivational, social, cultural, and neurological factors that underlie learning and performance. Our faculty and students engage in research that goes beyond the laboratory and makes a difference for schools, families, and communities.

Our graduate students collaborate with the field's leading researchers, benefitting from mentorship and coursework that reflects the latest scholarship in educational psychology. With access to our department's quantitative methodology faculty, students are also well-prepared to use a variety of research methodologies needed to address the significant and complex questions about learning, instruction, and development that confront society. Renowned alumni from Maryland's educational psychology program carry on this legacy and advance the field nationally and internationally.

Finally, our status as the flagship university in the State and our location just outside of Washington, D.C. allow for close relationships with leading research agencies and nonprofit organizations on Capitol Hill and around the world. Celebrating 100 years of leadership in education this year, our college of education looks forward to advancing the field through pioneering research in educational psychology.

Sincerely,

Jennifer King Rice
DEAN AND PROFESSOR
UMD COLLEGE OF EDUCATION

EDUCATIONAL PSYCHOLOGY AT THE UNIVERSITY OF MARYLAND

Educational Psychology ranked in the top 10 by *US News & World Report* rankings for the last decade.

Our faculty highlights include:

- 4 Career and Lifetime Achievement Awards:
  - Sylvia Scribner Career Award, Div. C, AERA
  - Edward Thorndike Lifetime Contributions Award, Div. 15, APA
  - Oscar Causey Outstanding Contributions Award, ILA
- 3 Early Career Awards:
  - APS, APA, AERA
- 1 System Award for Mentoring
- Distinguished University Professor
- 2 University Distinguished Scholar-Teachers
- 15 keynotes/invited talks
- 5 Editorships current* and past:
  - *Contemporary Educational Psychology**
  - *Educational Psychologist**
  - *Instructional Science*
  - *American Educational Research Association*
  - *Journal of Applied Developmental Psychology*
- 18 Grants and Fellowships Awards (2017-2019)
  - NSF
  - IES
  - Spencer Foundation
  - McDonald Foundation
- Fellow Status granted 11 times
  - 4 APA
  - 3 AERA
  - 3 APS
  - 1 Society for Text and Discourse
- Organization Leadership Roles
  - 2 AERA Div. Vice-Presidents
  - 1 APA President for Div. 15
- Major Committee Roles:
  - Praxis
  - Progress in International Reading Literacy Study

MEASUREMENT, STATISTICS AND EVALUATION FACULTY

Educational psychology faculty collaborate with our experts in measurement, statistics and evaluation.

Gregory R. Hancock, Ph.D.
PROFESSOR AND DISTINGUISHED SCHOLAR-TEACHER
Structural equation modeling, latent growth models, reliability, planned missing data designs, and statistical power.

Jeffrey R. Harring, Ph.D.
PROFESSOR
Statistical methods for longitudinal and clustered data, finite mixture modeling, nonlinear structural models, and statistical computation.

Hong Jiao, Ph.D.
ASSOCIATE PROFESSOR
Testlet, multilevel, and mixture item response theory modeling, using process data for cognitive diagnosis, psychometrics in large-scale assessment.

Yang Liu, Ph.D.
ASSISTANT PROFESSOR
Psychometrics, item response theory, statistical inference, categorical data analysis, latent variable modeling.

Laura M. Stapleton, Ph.D.
PROFESSOR AND ASSOCIATE DEAN OF RESEARCH, INNOVATION AND PARTNERSHIPS
Analysis of administrative data and survey data obtained under complex sampling designs and multilevel latent variable models.

Peter M. Steiner, Ph.D.
ASSOCIATE PROFESSOR
Causal inference, quasi-experimental designs including matching and regression discontinuity designs, graphical models, causal replication, factorial survey and vignette experiments.

Tracy M. Sweet, Ph.D.
ASSOCIATE PROFESSOR
Social network analysis, multilevel models, Bayesian inference, data science.

Ji Seung Yang, Ph.D.
ASSOCIATE PROFESSOR
Measurement and quantitative research methods using latent variable models for social sciences.

KELLY S. MIX

PROFESSOR AND CHAIR, DEPARTMENT OF
HUMAN DEVELOPMENT AND QUANTITATIVE METHODOLOGY

Dr. Kelly S. Mix's research examines the development of number concepts and mathematical reasoning, with a particular interest in the use of cognitive science principles to improve children's learning. Supported by a $1.8M National Science Foundation grant, she is investigating how relational learning mechanisms, such as number comparisons, help first graders learn math values. In a separate Institute of Education Sciences $1.4M-funded project, Dr. Mix was among the first to demonstrate that if you train children in spatial tasks like mental rotation, they show immediate improvement in mathematics performance.

A former elementary school teacher, Dr. Mix's work helps to bridge the gap between learning that occurs in psychological experiments and learning that occurs in the school context. She leverages the long history of human cognition research to help teachers improve student outcomes. Dr. Mix has served in numerous national service roles, and currently serves on the vision and development panels for the 2025 National Assessment of Educational Progress in Mathematics.

KEVIN NIALL DUNBAR

PROFESSOR

Dr. Dunbar explores how humans develop the complex thinking and reasoning skills used in science and all domains that involve creativity. He has investigated children and scientists, as well as undergraduate students in domains such as biology, physics, dance, and music. He uses a variety of research methods, including ethnographic, experimental and neuroimaging techniques, to investigate key components of the scientific and the creative mind.

An Association for Psychological Science Fellow, Dr. Dunbar currently is investigating the learning process that groups of UMD undergraduates use while designing experiments to be carried out on the International Space Station. His work has been featured in the *New Yorker*, *WIRED* magazine, and the *Washington Post*, in addition to journals like *PLOS One* and the *Educational Psychology Review*.

ALLAN WIGFIELD

PROFESSOR

Dr. Wigfield is one of the leading motivation researchers in the world. His research focuses on the development of motivation in children across the school years. He also investigates how gender and other factors influence motivation, and has developed successful interventions to improve students' motivation in reading and STEM. Funded by the National Science Foundation, Dr. Wigfield is leading a longitudinal study of the popular construct "grit" and how it relates to academic outcomes in diverse high school and college students.

Director of the Motivation in Education Research Group, Dr. Wigfield has authored more than 150 peer-reviewed journal articles and book chapters on children's motivation and other topics and edited five books and seven special issues of journals devoted to students' motivation. He was editor of the *American Educational Research Journal* and associate editor of *Child Development* and *Journal of Educational Psychology*. Dr. Wigfield has won numerous awards for his research and also for his teaching, including the Sylvia Scribner Award from Division C of the American Educational Research Association in 2019. Dr. Wigfield has received over $11 million in grants to support his research over the course of his career.

COGNITION AND DEVELOPMENT LAB

The Cognition and Development Lab is co-directed by Drs. Lucas Butler and Richard Prather. Dr. Butler's research focuses on the development and consequences of social learning in early childhood. With the use of digital animations, Dr. Butler investigates young children's abilities to evaluate others' claims about the world. Using brain imaging, computer modeling, and experimentation, Dr. Prather investigates neurocognitive development and its relationship to the development of mathematical ability.

LUCAS BUTLER

ASSISTANT PROFESSOR

A developmental psychologist by training, Dr. Butler examines how children understand the process of reasoning about evidence. His lab focuses on how children ages 3 to 7 examine the validity of others' claims, reasoning both about evidence and the social context. In a climate where we are inundated with a tremendous amount of information of varying quality, Dr. Butler's work illuminates how children develop the capacity to assess what others tell them about the world. He has learned young children arrive at school with a strong foundation to understand empirical reasoning. Dr. Butler studies ways teachers can capitalize on this foundation and strengthen student reasoning.

A recipient of the Association for Psychological Science's Rising Star Award, as well as a Spencer Foundation grant award, Dr. Butler is co-editor of *The Questioning Child: Insights from Psychology and Education*, to be published by Cambridge University Press in 2020.

DOUG LOMBARDI

ASSOCIATE PROFESSOR

Dr. Lombardi investigates how to help students think scientifically in a fast-evolving world. His research focuses on instructional tools and strategies that support middle, high school and undergraduate students in critically evaluating different perspectives of socio-scientific problems and making evidence-based judgements about scientific claims.

With a $2.5M grant from the National Science Foundation, Dr. Lombardi is leading an inter-institutional research project that helps students evaluate connections between scientific evidence and explanations related to the causes of climate change. Through a scaffolding tool developed for this project, students learn deeply about the underlying science concepts, preparing them to be scientifically-literate citizens in today's information-rich age.

With publications in *Contemporary Education Psychology* and *Science Education*, Dr. Lombardi is a recipient of early career research awards from the American Educational Research Association's Division C (Learning and Instruction), American Psychological Association's Division 15 (Educational Psychology) and NARST: A Worldwide Organization for Improving Science Teaching and Learning Through Research.

GEETHA RAMANI

ASSOCIATE PROFESSOR

Dr. Ramani's research examines how social interactions and play activities influence children's development in mathematics and problem solving. She also investigates factors—such as parent-child conversations about math—that contribute to individual differences in these skills in young children. Her intervention work examines how children learn early math and cognitive skills through play and informal learning activities, such as playing with games, tablets, and blocks.

Dr. Ramani investigates how parent-child interactions, parental beliefs, and the early home environment contribute to children's mathematical knowledge, and how peer cooperation in young children can benefit children's cognitive development. Together, her work focuses on the benefits and unique processes of learning through joint play and cooperation with adults and peers, and their importance for educational practices with young children.

Dr. Ramani's recent research, funded by the National Science Foundation, examines how tablet-based games can boost children's math learning and working memory. Dr. Ramani's work has been published in *Child Development*, *Developmental Psychology*, and the *Journal of Educational Psychology*, among other top journals.

DISCIPLINED READING & LEARNING RESEARCH LABORATORY

Directed by Dr. Patricia A. Alexander, the Disciplined Reading & Learning Research Laboratory is dedicated to the study of psychology in teaching and learning. With the support of a team of graduate students, the lab's research programs include the study of reading, relational reasoning, multiple source use, language development, and prior knowledge activation. In one recent groundbreaking research project, Drs. Alexander and then-graduate student Lauren Singer Trakhman investigated the effect of reading in digital versus print on comprehension.

KATHRYN WENTZEL

PROFESSOR

Dr. Wentzel explores the social aspects of students' motivation to learn. In this regard, she studies young adolescents' relationships with peers and teachers and how they motivate prosocial and responsible classroom behavior and academic performance. Her research is based on students from diverse backgrounds, and employs mixed methods and longitudinal designs. Her recent work includes meta-analyses on friendship and peer acceptance as they relate to academic motivation, cognitive outcomes and achievement. Dr. Wentzel is a Spencer Foundation grant recipient and past Vice-President of AERA's Division E, Counseling and Human Development.

A prolific scholar, she has co-edited books on achievement motivation (e.g., *Handbook of Motivation at School*), and social influences at school (*Handbook of Social Influences in School Contexts: Social-Emotional, Motivation, and Cognitive Outcomes*). She is editor of *Educational Psychologist*, which focuses on research pertaining to education across all ages and educational levels.

RICHARD W. PRATHER

ASSISTANT PROFESSOR

Dr. Prather investigates mathematical learning in children, with a focus on cognitive processes that relate to learning math in early childhood. His research employs brain imaging methods, along with computational modeling of learning and behavior, to make predictions regarding student math performance on the individual level. Dr. Prather's work has direct implications for students, teachers and parents. He examines which interventions, such as parents talking to their children about math, make the greatest difference in supporting student learning.

The chair of the diversity committee for the Cognitive Neuroscience Society, Dr. Prather is also exploring via brain imaging whether there is a relationship between exposure to air pollution and cognitive development, as it relates to learning math. Publishing in the *Journal of Cognition and Development* and other top journals, his work extends beyond the laboratory and into schools, where he helps to develop interventions that improve math performance.

"LEARNING AND ACADEMIC ACHIEVEMENT REQUIRES FAR MORE THAN BASIC INSTRUCTION. CLASSROOMS ARE SOCIAL ECOLOGIES THAT HAVE TREMENDOUS INFLUENCE ON HOW AND WHAT CHILDREN LEARN AND HAVE BROAD IMPLICATIONS FOR HOW WE DEVELOP INTERVENTIONS AND CONDUCT RESEARCH IN SCHOOLS."

PATRICIA A. ALEXANDER

DISTINGUISHED UNIVERSITY PROFESSOR

Dr. Alexander's research focuses on academic development and learning, with an emphasis on literacy, reading comprehension and knowledge. She studies how people learn across different subject matters and across the lifespan. A theoretician, her conceptual work has transformed the field of educational psychology. She developed the Model of Domain Learning, which took a novel approach to stages of learning in academic subjects, and conducted groundbreaking research on learning through text and relational reasoning.

Named one of the most productive educational psychologists for more than a decade, Dr. Alexander's work wrestles with the timeless question of how we learn, as well as engaging with the pressing issues of today, like how a shift to digital reading affects learning.

Among her leadership roles, Dr. Alexander has served as President of Division 15 (Educational Psychology) of the American Psychological Association and currently serves as the senior editor of Contemporary Educational Psychology. She is a Fellow of the American Psychological Association, the American Educational Research Association, and the Society for Text and Discourse. She is a recipient of the E.L. Thorndike Lifetime Achievement Award from APA Division 15, the Sylvia Scribner Career Award from AERA Division C, and the Oscar Causey Career Award from the Literacy Research Association. Her pioneering work is reflected in her appointment as a Distinguished University Professor, the highest university recognition for scholarship.

DONALD J. BOLGER

ASSOCIATE PROFESSOR

Dr. Bolger's expertise is the neurobiology of learning and development, particularly in reading and language ability. He researches learning disabilities, such as autism and dyslexia, and their impact on language development and executive functioning as well as how that impacts academic achievement. His research on cognition extends to an array of pressing societal topics, from the effects of poverty on brain growth to bilingual advantages in learning. Through one recent project, the Interventions to Mitigate Toxic Stress initiative, funded by MPower, he and colleagues at the University of Maryland School of Medicine are examining school-based interventions to improve learning outcomes for children exposed to abuse, poverty, violence, or neglect.

Using brain imaging, Dr. Bolger tracks how the brain changes as we learn, including over time spans and through the course of learning. He examines how the brain responds to particular situations—like learning a word—and identifies differences in the learning trajectories of neurotypical children and children with disabilities. His work helps advance understanding of the basis of language disabilities and how to remediate learning issues, whether through instructional interventions or neural-based interventions like pharmacological tools.

A recognized expert on reading, Dr. Bolger's work on learning to read has recently been featured on American Public Media's podcast, while Inside Science interviewed him on whether or not it is possible to be dyslexic in Chinese.

LABORATORY FOR NEURODEVELOPMENT OF READING AND LANGUAGE

At the Laboratory for Neurodevelopment of Reading and Language, Director Donald J. Bolger investigates how people learn to read words and what brain imaging reveals about those approaches. In one study, Dr. Bolger and his students explored how phonics and holistic approaches are used to teach people how to read and the effectiveness of those approaches. His use of brain imaging has shed light on the development of reading, in particular the neurocognitive differences between neurotypical readers and those with learning disabilities.

MIN WANG

PROFESSOR

Dr. Wang's research uses a cross-linguistic approach to identify factors that influence bilingual and biliteracy development. Working mostly with children in grades K-5, as well as adult second-language bilingual readers, she looks at phonological (sound), orthographic (spelling), and morphological (meaning) factors that influence how bilingual learners learn to read in both languages, as well as how those three factors work together to influence reading.

Her cross-linguistic work, looking at Chinese-English, Spanish-English and Korean-English language pairs, delves into universal and language-specific processes that facilitate literacy development. Funded by the *Eunice Kennedy Shriver* National Institutes of Child Health and Human Development, the National Science Foundation and the Spencer Foundation, her work sheds light on how to develop a successful bilingual reader, which is a critical and distinct field of scholarship, as more than half the global population speaks two or more languages. Dr. Wang is a Fellow of the Association of Psychological Science and the Psychonomic Society. She has served on the National Advisory Committee for Praxis, a test that measures the academic skills and content knowledge needed for teaching.

EXPLORE OUR LABS:
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